

Figure 1

10

Placing a substrate comprising an upper surface, a lower surface, and silicon in a reaction cell, wherein at least one of said surfaces is coated with a coating selected with from the group consisting of TaN, TiN, Ta, WN, WCN, TaSiN, and TiSiN

20

Injecting a source metal into the cell through the use of a carrier gas that is bubbled through water into the cell during a first pulse of 1-20 seconds duration

30

Injecting an inert gas into the cell during a second pulse of 1-10 seconds duration

40

Injecting a reducing agent into the cell during a third pulse of 1-10 seconds duration

50

Injecting an inert gas into the cell during a fourth pulse of 1-10 seconds duration

Figure 2

60

Placing a substrate having a temperature in the range of 120 ° C to 300 ° C and comprising an upper surface, a lower surface, and silicon in a reaction cell, wherein at least one of said surfaces is coated with a copper layer

70

Injecting an oxidizing agent into the cell through the use of a carrier gas during a first pulse of 1-20 seconds duration

80

Injecting an inert gas purge pulse into the cell during a second pulse of 1-10 seconds duration

90

Injecting a reducing agent into the cell during a third pulse of 1-10 seconds duration

100

Injecting an inert gas into the cell during a fourth pulse of 1-10 seconds duration

Figure 3

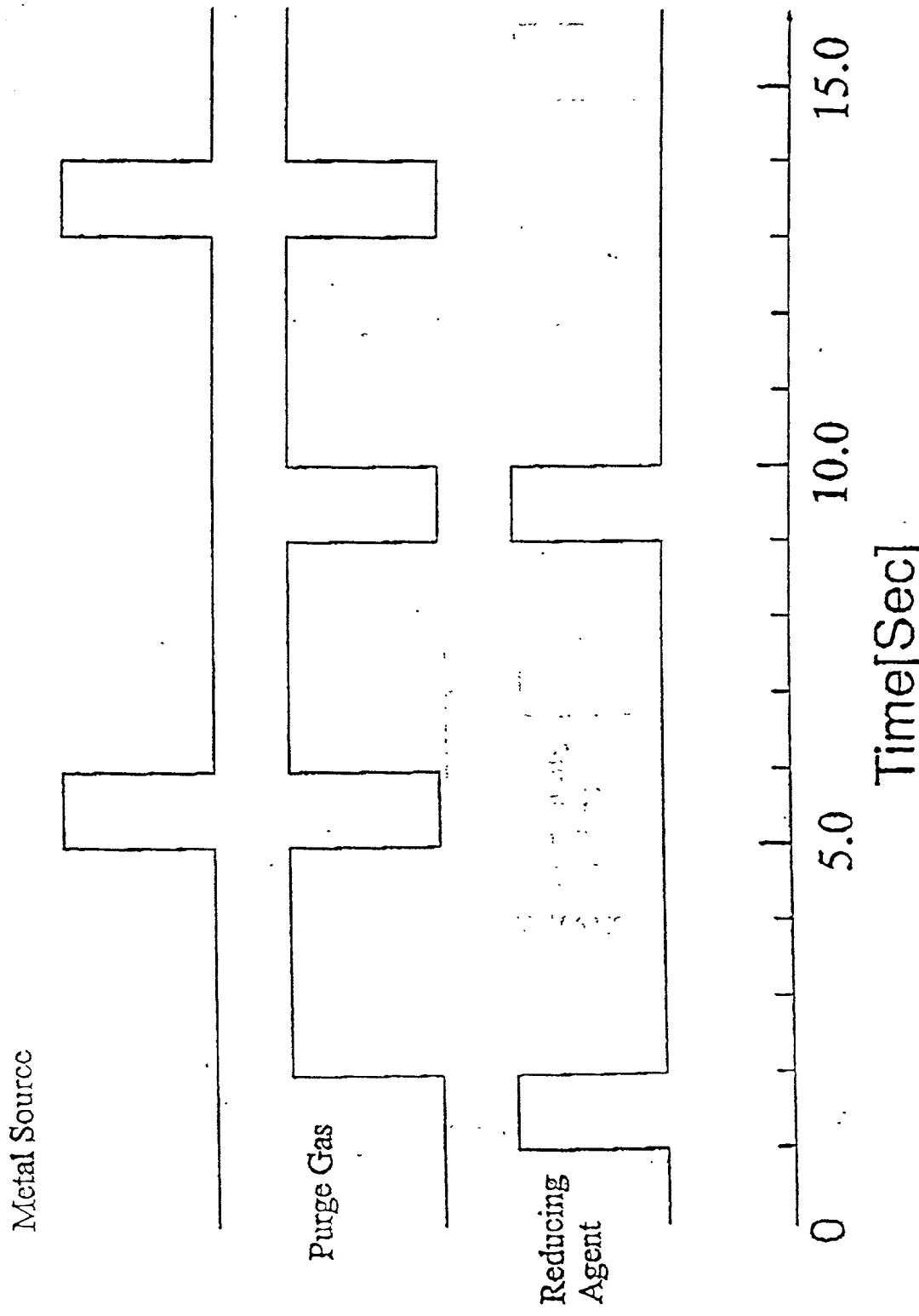


Figure 4

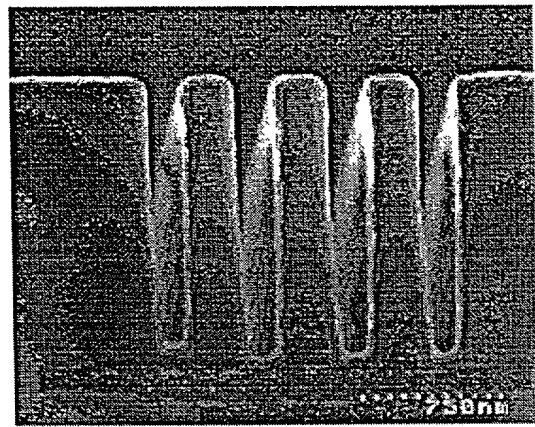


Figure 5 a

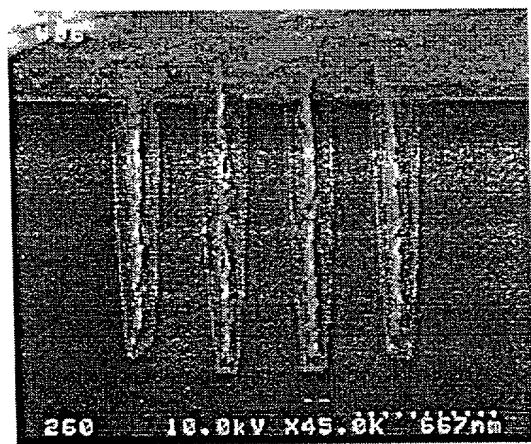


Figure 5 b

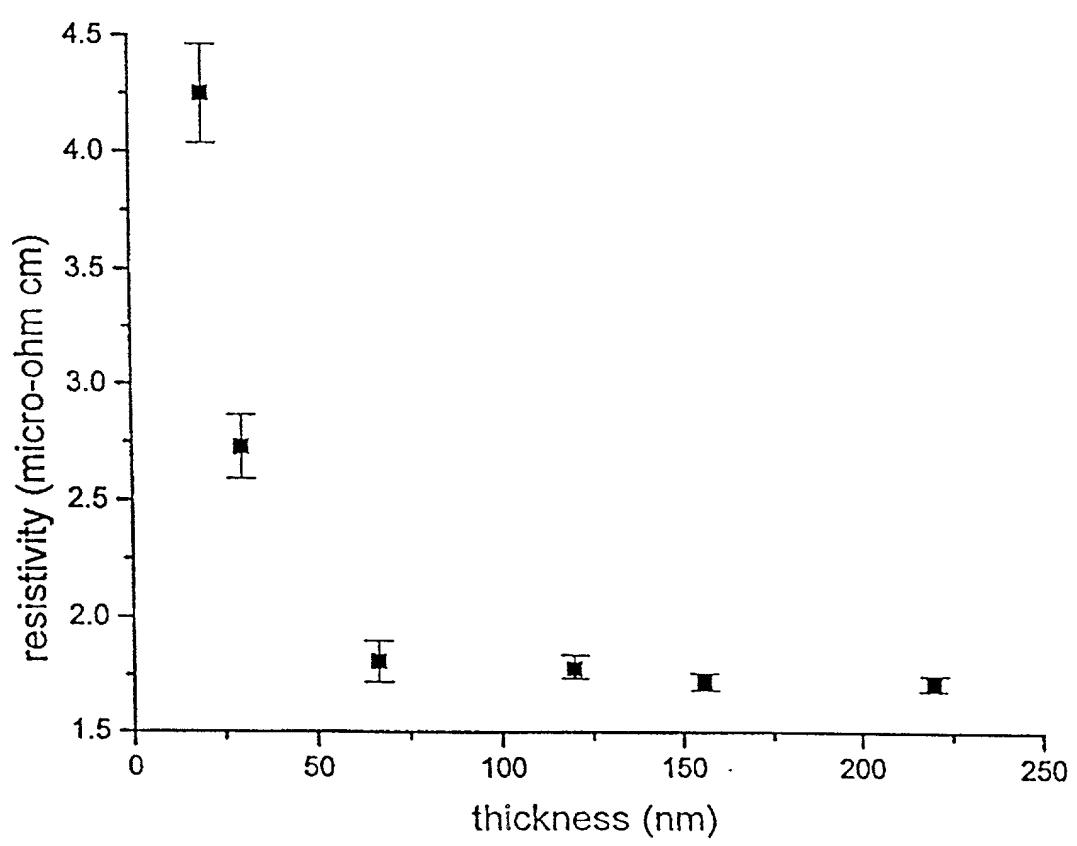


Figure 6